SECTION 213 – PETROMAT FABRIC

1. DESCRIPTION

This work shall include the installation of a non-woven polypropylene mat ("Petromat") (paving grade) to an existing pavement surface to control reflection cracking and form a moisture barrier.

2. EQUIPMENT

A. Asphalt Distributor. The distributor must be suitably metered and capable of spraying the asphalt sealant at a prescribed uniform application rate. No drilling or skipping should be permitted. The distributor should be equipped with a hand spray with single nozzle and positive shut-off valve.

B. Fabric Laydown Equipment. Mechanical laydown equipment must be capable of handling full rolls of fabric, and shall be capable of laying the fabric smoothly, without excessive wrinkles and/or folds. When manual laydown is required, a length of standard one inch pipe, together with suitable roll tension devices, are required for proper roll handling.

3. CONSTRUCTION PROCEDURE

A. Surface Preparation. The surface on which the fabric is to be placed should be free of dirt, water and vegetation. Cracks between 1/8 inch and 1/4 inch must be filled with a suitable filler as directed by the engineer. Larger cracks or holes are to be repaired with slurry, cold or hot mix. In some cases a leveling course may be specified prior to placing the fabric.

B. Application of Sealant. The asphaltic sealant must be uniformly spray applied at the specified rate. Quantity specified will vary with the surface condition of the existing pavement, but will normally be applied at the rate of 0.25 to 0.30 gallons per square yard (gys) residual asphalt. At least 0.20 gsy residual asphalt, under heat of the applied overlay, is absorbed by the fabric alone. Within street intersections or other zones where vehicle speed change is commonplace, reduce the prescribed application rate by about 20 percent. Application will be by distributor equipment wherever possible, with hand spraying kept to a minimum. Temperature of the asphalt must be sufficiently high to permit a uniform spray pattern. For asphalt cements the minimum recommended temperature is 290° F. (Note: if the fabric is oversprayed, distributor tank temperatures should not exceed 325° F. to avoid damage to the fabric), for emulsions, temperature of the heavier grades may be as high as 160° F. to insure an optimum spray pattern.

The target width of the asphalt sealant application should be fabric width plus 2 to 6 inches. Asphalt drools or spills should be cleaned from the road surface to avoid flushing and possible fabric movement at these asphalt rich areas.

The quantity of asphalt applied to the fabric is extremely important. The object is to fully seal the membrane, but not to use an excessive quantity which might cause a slippage plane.

C. Fabric Placement. The fabric shall be placed into the asphaltic sealant with a minimum of wrinkles prior to the time the asphalt has cooled and lost tackiness. (NOTE: When emulsions are used, allow adequate cure time before placing fabric). The fabric is unrolled so that the bearded (fuzzy) side is unwound into the sealant, thus providing optimum bond between fabric and pavement during the construction process.

As directed by the engineer, wrinkles severe enough to cause "folds" shall be slit and layed flat. Brooming will maximize fabric contact with the pavement surface. Small wrinkles which flatten under compaction are not detrimental to performance.

Overlap of fabric joints should be minimal, although an overlap of 1 to 3 inches is recommended to insure full closure of the joint. Transverse joints should be "shingled" in the direction of paving to prevent edge pick-up by the paver. As directed by the engineer, additional sealant of about 0.20 gsy should be applied to fabric joints.

D. Hot Mix Overlay. Placement of the hot mix overlay should follow fabric laydown. In the event that the sealant bleeds through the fabric before the hot mix is placed, it may be necessary to blot the sealant by spreading sand or hot mix over the affected areas. This will prevent any tendency for construction equipment to pick up the fabric when driving over it.

Temperature of the mix in no case should exceed 325° F. Turning of the paver and other vehicles must be gradual to avoid movement or damage to the membrane.

4. SPECIAL CONSIDERATIONS

A. Ambient Temperatures. Air temperatures during fabric installation should be warm enough to allow adequate "tack" from the asphalt sealant to hold the fabric in place. Minimum for most asphalt cements will be approximately 50° F. When using emulsions, air temperatures should be 60° F. and rising; cooler temperatures adversely affect cure time.

B. Emulsion Cure Time. When asphalt emulsions are used with the Petromat system, it is important that they be cured (essentially no moisture remaining) prior to installation of the fabric. Cure time will vary with emulsion type, temperature, humidity and other variables.

When cured, not only will the surface be tacky, the characteristic brown hue of uncured material will have turned glossy black when the film is examined in depth.

C. Asphalt Quantity. The correct asphalt application rate should be based on the quantity of residual asphalt in the material specified, and porosity of the surface to be covered. Generally, this will be 0.25 to 0.30 gallons per square yard residual asphalt.

When asphalt emulsions are used on a new (relatively porous) leveling course, they will penetrate the surface more readily then they will old pavement. This can be compensated for by using heavier tack coats, or by specifying pneumatic rolling on the leveling course to obtain a tight impermeable surface.

D. Tack Coat. It is usually not necessary to tack coat the fabric prior to placement of a premix overlay. However, there may be circumstances such a delay of overlay, dust accumulation, or under-application of binder which would make tack coating desirable. This decision will be made by the Engineer.